

UTAH DEPARTMENT OF TRANSPORTATION
MINIMUM SAMPLING AND TESTING REQUIREMENTS

1. PURPOSE

The purpose of this document is to comply with the Code of Federal Regulations 23 CFR 637B, which requires that each State transportation agency outline its sampling and testing program in a separate document. Materials incorporated into the project shall be sampled, tested, and certified according to this program.

2. SCOPE

The sampling and testing program addresses acceptance and independent assurance samples and tests. Preliminary tests for source or pit acceptance are performed by the region laboratory.

3. RESOURCES

- a. UDOT Manual of Instruction - Materials Part 8
- b. AASHTO Standard Specifications for Transportation Materials
- c. ASTM Standards
- d. UDOT Procedure 08B-31

4. ACCEPTANCE SAMPLING AND TESTING

Acceptance samples and tests are used to determine the quality and acceptability of the materials to be incorporated into the project, as well as the workmanship performed on the project. Unless otherwise designated, acceptance tests are performed under the direction of the Resident Engineer by individuals who have an applicable UDOT materials testing certificate. Tests will be performed in accordance with the most recent cited standard methods of AASHTO, ASTM or Western Alliance for Quality Transportation Construction (WAQTC) and the Department's Manual of Instruction in effect on the date the project is advertised.

UDOT's Central Laboratory will accept Manufacturer's Certificate of Compliance (See samples Section 2) for most commercially fabricated materials. A copy of the Manufacturer's Certificate of Compliance will accompany those items to the project site where they will be inspected for final acceptance. Commercially fabricated materials that require pretesting will be certified by the Central Laboratory (Refer to Section 1). A copy of the test report must accompany those items to the project site where they will be inspected for final acceptance.

Cement, fly ash, reinforcing steel, epoxy coating for reinforcing steel, performance graded (PG) asphalt binder, asphalt emulsion, hydrated lime and reinforcing steel galvanized coating sources will be pre-approved through the Central Material's Quality Management Plans listed in Section 5 of this document. Call 965-4859 or access UDOT Central Materials Division web page (www.dot.state.ut.us/mtl/) for a complete listing of pre-approved materials. See Section 4 for supplier QC testing and UDOT verification testing frequencies required to maintain status as a pre-approved source. Ready mix concrete and precast/prestressed concrete suppliers as well as concrete pumping contractors will be pre-qualified through the Central Materials Quality Management Plans and must follow acceptance testing and inspection frequencies listed in Section 1. Quality management plans are found in Section 5 of this document. The Resident Engineer will check with the Engineer for Materials to verify that the source or supplier has been pre-approved. Each product will require either a test report or a Manufacturer's Certificate of Compliance as stated in Section 1 of this document.

Random samples of all products/materials may be taken at any time. Any products/materials found to be out of specification will cause said material to be rejected and removed from the project site at the manufacturers' expense or be subject to applicable price adjustments. Rejection of products/materials which were certified as meeting specifications by the manufacturer may result in a suspension of the use of the supplier's products/materials for UDOT projects. All samples are

to be submitted as work progresses. All sample forms will be completely filled out, protected to prevent damage, and firmly attached to the applicable sample.

Items that are not listed in Section 1 and are to be incorporated into the project, require appropriate testing or certificates of compliance as outlined in the Standard Specifications, Project Special Provisions, Supplemental Specifications, and change orders.

Test reports or Manufacturer's Certificate of Compliance will be used to allow incorporation of materials into the project. Verification for partial and final payment will be made by the Resident Engineer.

Contractor-produced materials such as crushed aggregate, bituminous mixes, and Portland cement concrete are accepted solely on the basis of testing. Samples are taken at the point of acceptance and compliance tests are performed in accordance with the applicable section of the Standard Specifications.

The collection of test reports and Manufacturer's Certificates of Compliance for all applicable products/materials is the responsibility of the Resident Engineer. All reports and Certificates are to be retained in the project file. A copy of the project file will be submitted to the Region Materials Engineer for review. The Resident Engineer will certify the project based on test results of acceptance samples that indicate the materials incorporated into the project were in conformance with the approved plans and specifications.

State supplied items are products received and stored by UDOT, and subsequently reserved for project use. These items include many traffic control and safety devices such as guardrails and lighting. The receipt of these items by both the state storage facility and the project site shall be based upon the manufacturer's certificate of compliance. The individual items shall also be inspected for damage or other verifiable discrepancies from the required specifications.

Small Projects or Small Quantities of Material

Projects on which the quantities of borrow (including granular borrow and granular backfill borrow), untreated base course, and bituminous surfacing do not exceed 3,000 tons are considered small projects. These projects are sampled and tested at a lower frequency than regular projects.

On projects where small quantities of the above materials are placed in different locations, and not continuously, the lower sampling and testing frequency will apply, although the total tonnage of these materials on the project may exceed 3,000 tons. These lower frequencies will appear in Section 1 as parenthetical expressions.

Very Small Quantities of Materials

Very small quantities of materials may be accepted without any sampling or testing as follows:

- a. Acceptance on the basis of visual inspection. Acceptance is limited to only those materials being furnished from sources which have recently been found satisfactory under normal sampling and testing procedures.
- b. Acceptance on the basis of certification. A satisfactory certificate of compliance must be in the possession of the engineer prior to using the affected materials on the project.

Items to which the above methods of acceptance may be applied and the quantities that can be accepted are as follows:

- a. Aggregates: Untreated base course - not to exceed 220 tons per day or 1,500 tons per project; borrow or granular borrow - not to exceed 330 tons per day or 1,500 tons per project.
- b. Asphalt mixes - not to exceed 100 tons per day or 775 tons per project.
- c. Asphalt binder, cut-backs and emulsions - not to exceed 10 tons per day or 45 tons per project.
- d. Traffic Marking Paint - not to exceed 50 gallons per project, subject to approval of weight and analysis stated on the container.

- e. Reinforcing steel and epoxy coated reinforcing steel - less than 4,000 pounds per project.
- f. Pipe culverts - not to exceed 200 feet.
- g. Portland cement concrete - not to exceed 8 cubic yards per placement for compressive strength test. However, one strength test will be required for each 50 cubic yards accumulated. An acceptable air and slump test is required on each day's placement. For structures under the roadway, standard testing procedures apply.
- h. Small quantities of items other than those noted above may be accepted upon approval by the engineer, providing the total value of the item, using the unit bid price, is less than \$3000.00 or 0.5% of the total value of the project, whichever is less.

Summary of Acceptance Sampling and Testing

UDOT's acceptance sampling and testing program is summarized in Section 1. The necessary forms and reports for documentation and reporting test results are shown in Section 2. Access UDOT Central Materials Division web page (www.dot.state.ut.us/mtl/) for electronic versions of all necessary forms.

5. INDEPENDENT ASSURANCE ACTIVITIES

The Independent Assurance (IA) program is an independent verification of equipment, sampling, and testing procedures and provides continuity to the Quality Assurance (QA) program. It involves a separate and distinct schedule of equipment inspection, comparison of test results and limited observation of sampling & testing procedures. IA testing does not relieve any responsibility for obtaining and testing all samples required for complete and adequate project control.

Qualified sampling and testing personnel, other than those performing the acceptance, verification and QC sampling and testing, should perform IA activities. Likewise, equipment other than that used for acceptance and QC should be used for IA sampling and testing. The IA will be conducted by UDOT personnel or its designated agent. UDOT's complete Independent Assurance program is summarized in Section 1012 of the Materials Manual of Instruction, Part 8.

Frequency of Independent Assurance Activities

Independent Assurance sampling and testing shall be performed by split samples, limited observation, or proficiency samples at frequencies outlined in 1012.10 of the Manual of Instruction. Limited observations may be conducted only once annually. Verification samples should be taken at a location and frequency established in the contract specification.

Central Materials Division Independent Assurance Activities

The Central Materials Division performs IA activities on UDOT Region Labs and any non agency labs which may not fall under the jurisdiction of a Region Lab. The Central Materials Lab will use split samples and limited observations to review the equipment and test procedures used by the Region Lab or non agency lab for IA, acceptance or verification sampling and testing. The Central Materials Division is responsible for training and certifying all technicians involved with acceptance, verification and IA sampling and testing. The Central Materials Lab will essentially follow the same process as Region Materials Labs when conducting IA activities.

6. CONCLUSION

This program represents the minimum frequency for sampling and testing. More samples may be required at the beginning of a project or when low volumes of work are performed over long periods of time. Any time workmanship or products appear questionable additional tests should be performed to ensure compliance.